



EXPRESS MAIL

SCP SITE

IDENTIFICATION OF ARARS FOR DEVELOPING REMEDIAL ALTERNATIVES

INPUT FOR FEASIBILITY STUDY

This paper identifies the requirements that appear to be "applicable or relevant and appropriate" to the SCP site cleanup effort. Applicable or relevant and appropriate requirements (ARARS) are used in the feasibility study process to evaluate the performance of remedial alternatives during detailed evaluation. An ARAR refers to any federal or state law or promulgated requirement that is either directly applicable, or addresses problems that are sufficiently similar to the hazardous substance, action, or location of a CERCLA site. Applicable requirements are not differentiated from relevant and appropriate requirements because, when used to assess remedial alternatives' performance, each is given equal weight and consideration.

As its definition suggests, an ARAR can be grouped as:

- o (1) contaminant-specific;
- o (2) action-specific; or
- o (3) location-specific:

Contaminant-specific ARARS set health- and risk-based concentration limits in various environmental media for specific hazardous substances or contaminants. An action-specific ARAR sets performance, design, or operating controls on particular remedial actions. A location-specific ARAR sets restrictions on the conduct of activities in particular locations (such as wetlands, floodplains, and national historic districts) or for environmental features, such as endangered species.

This paper also identifies material that may be considered for evaluating remedial alternatives when an ARAR does not exist for a contaminant or action or does not ensure a protective remedy. While not legally enforceable, "to be considered" material may provide cleanup standards or recommended procedures that explain or amplify the content of ARARS. State and federal guidance documents are examples of "to be considered" material. State promulgated requirements that are area-specific (i.e., not applicable statewide) also are treated as "to be considered" materials.

Contaminant-specific ARARS are used to establish cleanup criteria for remedial action in the context of EPA's mandate to protect human health, welfare and the environment. Therefore, ARARS must be evaluated to determine the level of protectiveness they provide before being applied to site cleanup. These

evaluations are performed in a risk assessment analysis, as defined by the Superfund Public Health Evaluation Manual (October 1986). If ARARs are determined to be unprotective, then risk-related factors established by the risk assessment will be used in their place.

1.0 CONTAMINANT-SPECIFIC ARARs

The following section identifies the contaminant-specific ARARs that are likely to exist for the SCP site based on the contaminants detected to date and identified in Table 2 of the Dames and Moore, "Draft Remedial Investigation Report," April 18, 1988. The section is organized according to the following media-specific ARARs: (1) ground water and surface water; (2) air; and (3) soil and sediments.

The section discussion is further broken down into federal and state ARARs. Generally speaking, state ARARs should be used where they are at least as or more stringent than the federal ARAR-equivalent. In addition, if more than one ARAR exists for a contaminant, the more stringent one should be used unless exposure pathways or other site-specific conditions dictate otherwise.⁽¹⁾

1.1 Ground Water and Surface Water

Federal

- o Safe Drinking Water Act (SDWA) - Maximum Contaminant Levels (MCLs) (40 CFR 141.11-.16)

SDWA MCLs establish safe levels for 31 contaminants in drinking water, including 14 compounds adopted as RCRA Maximum Concentration Limits (MCLs) (see "New Jersey Criteria for Ground Water Protection and Response"). SDWA MCLs reflect health factors and the technical and economic feasibility of removing contaminants from the water supply.

SDWA MCLs would establish design endpoints for SCP remedial alternatives where surface water or ground water is or may be used for drinking. Table 1.1 presents the SDWA MCLs for identified SCP chemicals. New Jersey has proposed MCLs that may be more stringent than Federal MCLs for some contaminants and should be evaluated instead when they become finalized (see Section 4.1, "To Be Considered" Material).

(1) EPA's Interim Guidance on Compliance with ARARs ("Interim Guidance"), 52 Federal Register 32496, August 27, 1987.

- o RCRA Groundwater Protection Standards (40 CFR 264, Subpart F)

The groundwater protection standards establish maximum concentration limits (MCLs) for Appendix VIII contaminants in the uppermost aquifer underlying a waste management area for permitted RCRA treatment, storage and disposal facilities. New Jersey codified these requirements in their own administrative code as the "New Jersey Criteria for Groundwater Protection and Response" (see separate entry below).

- o Clean Water Act (CWA) - Water Quality Criteria (WQC) (CWA Section 304)

WQC are levels of contaminant concentrations in ambient surface water and ground water that would not result in adverse human health effects, or in the case of suspected carcinogens, are associated with cancer risk range of 10^{-6} . WQC are provided to allow states to develop water quality standards based on state-specific surface water use and features. WQC are expressed in units of contamination per liter for three human exposure pathways: fish and water, fish only, and water only (derived). WQC are also expressed in concentrations considered protective of aquatic life. These concentrations should be used if there is a need to protect aquatic life in surface water.

WQC could be used as design endpoints for groundwater treatment systems at the SCP site, if water use at the site and vicinity corresponds to exposure pathway assumptions of the WQC. Based on the likely human exposure routes that exist in the area surrounding the SCP site (i.e., Berry's Creek runs through a residential area, making human consumption of contaminated fish and water possible), the WQC for fish and water ingestion should be used. Table 1.2 provides the human health WQC criteria for the SCP-identified chemicals. Because the Agency is still formulating its position concerning the use of WQC for human health evaluation, SDWA MCLs and state groundwater quality standards should be used where they are available.

State of New Jersey

- o New Jersey Groundwater Quality Standards (N.J.A.C. 7:9-6)

The groundwater quality standards provide cleanup levels for ground water classified as GW1 to GW4 based on total dissolved solids (TDS). Ground water underlying the SCP site is classified as GW2⁽²⁾. Table 1.3 provides the criteria levels for SCP

(2) NJDEP has indicated that the groundwater underlying the site is classified as GW2, however no conclusive determination has yet been made.

contaminants based on a groundwater classification of GW2. For most chemicals, the GW2 standard is equivalent to the RCRA MCL and SDWA MCL. When they are not the same, the more stringent standards should be used (i.e., GW2 standard for endrin is 0.004 ug/l compared to the SDWA MCL of 2×10^{-4} mg/l).

- o New Jersey Surface Water Quality Standards (N.J.A.C. 7:9-4)

The New Jersey Surface Water Quality Standards provide maximum concentrations of hazardous substances for various surface water classifications (e.g., FW2, SE, and SC waters). Surface water at the SCP site (e.g., Berry's Creek and Peach Island Creek) is classified as FW2-NT/SE2⁽³⁾. Table 1.4 presents the FW2-NT/SE2 surface water quality standards for toxic substances detected at the SCP site. Other substances regulated by the surface water quality standards are chlorides, pH, suspended solids, bacteria and phosphates.

- o New Jersey Criteria for Groundwater Protection and Response (N.J.A.C. 7:14A-6.15)

The New Jersey Criteria for Groundwater Protection and Response represent the codified RCRA Groundwater Protection Standards. The criteria provide four categories of not-to-be-exceeded concentration limits for hazardous waste constituents identified in N.J.A.C. 7:26-8.16: (1) state groundwater quality standards (N.J.A.C. 7:9-6) or state surface water quality standards (N.J.A.C. 7:9-4); (2) Maximum Concentration Limits (MCLs); (3) Alternate Concentration Limits (ACLs); and (4) background concentration levels. The groundwater protection program also specifies that sampling and monitoring be performed.

Generally speaking, the state groundwater/surfacewater quality standards (Table 1.3), rather than the other three categories, should be used to establish cleanup standards for the SCP site, because they are more stringent and specific to state groundwater characteristics (see separate discussion above). For many contaminants, the water quality standards are equivalent to the RCRA MCLs and SDWA MCLs. Maximum concentration limits are provided in Table 1.5. ACLs can only be used to set CERCLA

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- (3) Surface Water Quality Standards Guide and Index D, Surface Water Classifications of the Passaic, Hackensack and NY Harbor Complex Basin, July 1985. FW2/SE2 indicates there may be a salt/freshwater interface. The point of demarcation between fresh and saline water must be determined where salinity reaches 3.5 parts per thousand at mean high tide. "NT" means non-trout producing freshwater.

cleanup levels when point of human exposure is estimated within the facility's boundary, and MCLs are not otherwise appropriate. In general, background levels should not be adopted for establishing CERCLA cleanup levels. For the SCP site, the groundwater protection standards, particularly the New Jersey Groundwater Quality Standards (N.J.A.C. 7:9-6), should be used to evaluate the alternatives in the context of the vulnerability, use and value of the contaminated ground water. To the extent that the standards would restore ground waters to their current or potential uses, such standards may be applicable to SCP site cleanup.

- o NJPDES Values for Toxic Effluent Limitations (N.J.A.C. 7:14A-1, Appendix F,) (Whole effluent bioassay)

The values presented in Table 1.6 are the toxic effluent limitations used to establish discharge limitations in a NJPDES permit. Remedial actions that involve the discharge of contaminated ground water or leachate would have to comply with the NJPDES toxic effluent limitations. Remedial actions involving onsite discharges to ground water or surface water do not require a permit due to the CERCLA exemption. However, substantive effluent limitations must still be met.

1.2 Air

Federal

No contaminant-specific ARARs have been identified. See Section 2, "Action-Specific ARARs."

State of New Jersey

- o New Jersey Ambient Air Quality Standards (N.J.A.C. 7:27-13)

The ambient air quality standards provide maximum concentrations of suspended particulate matter in air, sulfur dioxide, carbon monoxide, ozone, lead, and nitrogen dioxide. Table 1.7 presents the concentrations for these listed contaminants. Technologies utilized during SCP site remediation that are likely to emit these contaminants to air, such as air strippers, in-situ vitrification or on-site incinerators, would have to be designed to ensure that the ambient standards are not exceeded.

1.3 Soils and sediments

No contaminant-specific ARARs exist for soils and sediments. See Section, 4.3, "To Be Considered" Material for Soil and Sediment Cleanup.

2.0 ACTION-SPECIFIC ARARS

The following section presents the ARARs that are likely to pertain to the SCP site cleanup, based on the remedial actions that could be developed to correct site contamination.

According to the Dames and Moore, "Draft Remedial Investigation Report," contamination has been detected in ground water, surface water, soils, and stream sediment. Therefore, action-specific ARARs presented below would affect technologies that could be used to remedy contaminated media.

The presentation is organized according to the following treatment types: ground water and surface water treatment, air emission treatment, general treatment, hazardous waste transport, and disposal and site closure. In addition, ARARs that protect worker safety and specify site management procedures are discussed.

Because the implementation of RCRA has been delegated to the states, all of the RCRA action-specific ARARs that may affect design of a remedial action at SCP are presented under the State of New Jersey sections. The Hazardous and Solid Waste Act (HSWA) amendments to RCRA, for which New Jersey does not have authority, are described under the federal sections.

2.1 Ground Water and Surface Water Treatment

Federal

- o Clean Water Act (Section 402) - National Pollutant Discharge Elimination System (NPDES) (40 CFR Parts 122-125)

The NPDES program establishes applicable effluent standards (i.e., technology-based and/or water-quality based) for direct and indirect discharges to surface water and ground water. The NPDES program is administered by EPA and authorized State agencies (see the New Jersey Pollutant Discharge Elimination System (NJPDDES) discussion below).

- o SDWA Underground Injection Control (UIC) Program (40 CFR 144 - 147)

The UIC program controls the injection of fluids through wells into underground aquifers. The purpose of the UIC program is to protect drinking water sources. The substantive requirements of the UIC program include RCRA manifest and corrective action requirements, well construction requirements, and well operation and closure requirements. In addition, if the fluid to be injected is classified as a RCRA hazardous waste, it must be treated according to Best Demonstrated Available Technology

(BDAT) prior to injection. RCRA-restricted waste at CERCLA sites must attain treatment levels or be subject to one of several variances before being disposed of in certain aquifers.

The UIC program ARAR would pertain to the SCP site if a groundwater treatment system were selected that involved reinjection of pumped/treated ground water to aquifers.

State of New Jersey

- o New Jersey Pollutant Discharge Elimination System (NJPDES) (N.J.S.A. 58:10A-1)

The NJPDES program establishes applicable effluent standards (i.e., technology-based and/or water quality-based) for direct and indirect discharges to surface water, ground water and land. Technology-based effluent limitations have to be imposed on a case-by-case basis. Water quality-based limits include toxic and pretreatment standards (such as pretreatment standards for discharge into publicly-owned treatment works), water quality criteria, state water quality standards and NJPDES toxic effluent limits. (See separate entries under Section 1.0, "Contaminant-Specific ARARS.")

The NPDES program would apply to any remedial action that involves the direct discharge of treated or untreated ground water or liquid wastes, indirect stormwater runoff, underground reinjection of contaminated ground water, land application of sludge, rapid infiltration, and disposal of surface dredge spoils. (see NJPDES values for toxic effluent limits).

- o Permit to Divert Surface or Subsurface Waters (Non-agricultural) (N.J.A.C. 7:19)

Actions involving water diversion from surface waters or ground waters in excess of 100,000 gallons per day (70 gallons per minute) must obtain a water allocation permit. CERCLA actions that involve onsite water diversion must comply with the substantive requirements of this regulation, but are exempt under CERCLA from administrative requirements.

- o Well Drilling and Pump Installers Licensing Act (N.J.A.C. 7:8-3.11)

Any drilling, boring, coring or excavation of wells must be permitted. In addition, a licensed well driller must supervise the construction of all wells. CERCLA actions involving well drilling must receive the prior approval of the New Jersey DEP.

2.2 Air Emission Treatment

Federal

- o Clean Air Act National Emission Standards for Hazardous Waste Air Pollutants (NESHAPs) (40 CFR Part 61)

The Clean Air Act NESHAPs establishes emission standards for mercury, vinyl chloride, arsenic, and benzene (fugitive). These emission standards apply to specific facilities or processes. In addition, the NESHAPs establish fugitive emission standards for general sources emitting hazardous air pollutants, which contain performance standards and repair schedules for various equipment.

To the extent that remedial actions selected for the SCP site resemble the processes listed in the NESHAP standards, the standards would be appropriate for use as design endpoints. Remedial technologies that might be subject to NESHAPs include, but are not limited to, air strippers, in-situ vitrification and incinerators. The fugitive emissions standards would pertain to any remedial action selected, including surface impoundments (i.e., evaporation), that potentially release contamination to air.

State of New Jersey

- o New Jersey Air Permit Requirements (N.J.A.C. 7:27-8)

The air permit requirements state that emissions of organic substance (VOS) from waste or water treatment equipment must be calculated based on loading. Treatment equipment includes, but is not limited to, air strippers, aeration basins, and lagoons. Exemptions apply depending on type of equipment, VOS concentration and treatment capacity.

- o New Jersey Control and Prohibition of Air Pollution by Toxic Substances (N.J.A.C. 7:27-17)

The New Jersey toxic emission standards control the storage, transfer, use and discharge of toxic volatile organic substances (TVOS). Any emission of toxic substances must be registered with the New Jersey DEP. No numerical emission standards exist. This regulation also sets the standard for using the lowest allowable rate whenever a TVOS is subject to the provisions of one or more New Jersey air standard. Chemicals detected at SCP that are contained in this regulation include benzene, chloroform, 1,1,2-trichloroethane, tetrachloroethylene, and trichloroethylene.

These standards would apply to any remedial alternative having air emissions, such as air strippers, surface impoundments (i.e., evaporation), in-situ vitrification and incinerators.

- o New Jersey Regulations for Volatile Organic Substances (N.J.A.C. 7:27-16)

The New Jersey volatile organic substance (VOS) regulations control the storage, transfer, and emission of VOS from source operations. The maximum allowable emission level is expressed as a percentage of process emissions by weight. The maximum allowable emission levels range from 8 to 15 percent of process weight emissions, except for source operations with very high vapor pressure ranges, which have much lower allowable levels.

Any remedial action taken at SCP that would involve the release of VOS to air would be subject to these emission rates.

- o New Jersey Regulations on Incinerators (N.J.A.C. 7:27 - 11)

The New Jersey regulations on incinerators specify construction methods, particle emission standards for ash, and opacity standards. The regulations would require that a permit be obtained prior to construction. The construction/operation of an incinerator as part of a CERCLA response must only adhere to the substantive permit requirements.

The use of an onsite incineration to treat hazardous waste at SCP would be subject to the ash emission and opacity standards.

2.3 General Treatment

- o New Jersey Hazardous Waste Facility Design and Operating Requirements (N.J.A.C. 7:26 - 10.4 to 10.8 and 11.6 and 11.7)

New Jersey hazardous waste regulations provide design and operating standards for RCRA hazardous waste facilities, such as landfills, surface impoundments, or incinerators. The design requirements specify performance objectives, construction material restrictions, and liner system specifications for preventing contaminant migration to adjacent subsurface and air media. Landfills, for example, must have a double liner and leachate collection system. Incinerators must achieve certain contaminant destruction and removal efficiencies. The operating requirements state that facilities should be operated to prevent the release of contaminated material and waste migration to adjacent media. In addition, the regulations call for performing trial treatment studies.

extract no longer exceeds such levels. The Toxicity Characteristic Leaching Procedure (TCLP) must be used to produce waste extracts. The following treatment technologies have been identified as BDAT for solvent-containing waste: batch distillation, thin film evaporation, incineration, steam stripping, biological treatment, carbon adsorption, air stripping, and wet air oxidation.

"California List" wastes at SCP whose extracts/total waste exceed regulatory threshold levels are subject to a BDAT standard or a ban on land disposal. Table 2-2 provides threshold levels pertaining to "California List" wastes; Table 2-3 provides the required BDAT for each "California List" waste that exceeds the threshold levels. Certain variances and exemptions apply to select wastes based on lack of available treatment capacity. The TCLP is used to produce waste extracts.

Among the chemicals detected at the SCP site that are regulated by the LDR are certain solvents, (e.g., tetrachloroethylene, trichloroethylene, methyl chloride, toluene, chlorobenzene, and 1,1,1-trichloroethane), and "California List" wastes (e.g., numerous metals, and liquid PCBs). Preliminary site data indicate that all these chemicals have contaminated the ground water. In addition, an on-site tank storing sludges reportedly contains PCBs (PCB sludges may test as liquid). Disposing of likely PCB sludges and pumping of contaminated ground water may generate restricted hazardous waste, and therefore may necessitate TCLP testing to determine whether treatment may be required prior to land disposal.

- o TSCA Storage and Disposal of PCB Wastes (40 CFR 761.60 - 761.79)

This regulation requires that wastes containing PCBs in excess of 50 ppm be disposed of in a chemical landfill, incinerated, or by another method with equivalent destruction efficiencies. Site investigation indicates that contaminated soils/stream sediment contains PCBs in excess of 50 ppm, therefore site cleanup will be subject to the disposal methods identified above. The sludge in the on-site tank may also contain PCBs in excess of 50 ppm. (see Section 4.3, "To be Considered" Material for Soil/Sediment Cleanup).

- o National PCB Spill Cleanup Policy (52 Federal Register 10688)

This policy establishes cleanup levels for new spills of PCB material in restricted and unrestricted land use areas. EPA does not intend that these requirements automatically affect PCB cleanup levels established for CERCLA cleanups, because CERCLA sites involve old spills that may pose different cleanup criteria.

RCRA facilities subject to these requirements that may be used to remedy the SCP are surface impoundments, tanks and containers, thermal/incineration treatment, landfills, and chemical, physical or biological treatment facilities (e.g., solidification or fixation).

2.4 Hazardous Waste Transport

Federal

- o DOT Rules for the Transportation of Hazardous Materials (49 CFR Parts 107, 171.1 - 171.500)

These regulations specify the procedures for packing, labeling, manifesting, and transporting hazardous materials from point of generation to point of treatment, storage or disposal. All transported hazardous materials must be identified with a DOT registration number.

Any remediation that calls for transport of contaminated soils, treatment residues, or dredged stream sediment would be subject to the DOT hazardous waste transport requirements.

State of New Jersey

- o New Jersey Hazardous Waste Hauler Responsibilities (N.J.A.C. 7:26 - 7)

The New Jersey hazardous waste hauler responsibilities include waste labeling, record keeping, manifesting, and applying for a license. These requirements would apply to hazardous waste transported from SCP to off-site treatment or disposal facilities.

2.5 Disposal and Site Closure

Federal

- o RCRA Land Disposal Restrictions (40 CFR Part 268)

The land disposal restrictions establish treatment standards and prohibition dates for the disposal of certain listed hazardous wastes. Currently, the land disposal restrictions are in effect for listed solvent- (F001 - F005) and dioxin- (F020-23, 26, and 27) containing wastes and "California List" wastes (e.g., liquid metals, liquid PCBs, liquid cyanides, liquid corrosives, and solid/liquid halogenated organic compounds).

Solvent-containing wastes at SCP whose extract exceeds the Table 2-1 threshold treatment levels must be treated according to best demonstrated available treatment (BDAT) until the waste

State of New Jersey

- o New Jersey Hazardous Waste Facility Closure/Post-Closure Requirements (N.J.A.C. 7:26)

The hazardous waste closure and post-closure regulations provide general and facility-specific closure/post-closure requirements.

Closure/post-closure requirements are provided for tanks, containers, surface impoundments, landfills, and other facilities. Generally speaking, wastes must be removed from facilities at closure and facilities decontaminated. For landfills, in which waste remains on site, final liner and cover requirements apply. For wastes that will remain on site (i.e., disposed of on site), a final cover must be designed to (1) provide long-term minimization of contaminated liquids' migration; (2) function with minimum maintenance over the long-term; (3) promote drainage and minimize erosion or abrasion of the cover; (4) accommodate settling and subsidence so that the cover's integrity is maintained; and (5) have a permeability of less than or equal to exponent 1 X 10⁻⁷ centimeters per second. In addition, leachate collection systems must be operated until leachate is no longer detected.

If the SCP site remedy involves the use of hazardous waste facilities, such as surface impoundments, tanks/containers, solidification/fixation equipment, the facility-specific closure requirements would be appropriate. In addition, any on-site disposal of contaminated soils at SCP would be subject to the final cover requirements described above.

- o Soil Erosion and Sediment Control Plan Certification (N.J.S.A. 4:24-1)

Plan certification is required for projects which disturb more than 5,000 square feet of surface area of land. The plan must address soil erosion and sediment control measures for any excavation or closure activities that would occur during site remediation.

2.6 Worker Safety and Site Management

Federal

- o Occupational Safety and Health Standards for Hazardous Response Contractors (29 CFR 1926)

The OSHA standards for hazardous response contractors establish worker safety and health program goals for CERCLA cleanups. Broadly speaking, a health and safety program must identify site hazards and procedures for mitigating these hazards; provide training and medical surveillance; provide protective equipment

and engineering controls to ensure that maximum permissible exposure limits are not exceeded; inform subcontractors of risks involved; decontaminate employees and equipment; and prevent accidental collapse of site excavations in which employees work. In addition, contractors involved in hazardous waste remediation must be registered with the State of New Jersey.

- o TSCA Recordkeeping, Reporting and Marking of PCB Equipment (40 CFR 761.40-761.79)

These regulations specify procedures for recordkeeping, reporting, and marking of PCB material and equipment for receipt at incinerators and chemical landfills. Any on-site chemical landfilling or incineration of PCB-containing waste would be subject to these administrative requirements.

State of New Jersey

- o New Jersey's Hazardous Waste Facility Requirements - General (N.J.A.C 7:26 Subchapter 9)

The general hazardous waste facility treatment standards require the development of waste analysis, preparedness and prevention, contingency and emergency plans. In addition, facilities must keep site activity records, provide 24-hour site security, perform site inspections, and train personnel. All RCRA treatment, storage, and disposal facilities are required to satisfy these requirements prior to obtaining an operating permit.

The final remedy selected at SCP would have to demonstrate that the plans and procedures described above would be performed as a matter of remedy implementation.

3.0 LOCATION-SPECIFIC ARARS

The following section presents the ARARS that likely pertain to the SCP site based on the SCP site's location in a floodplain and wetland. Also note that the site is within the jurisdiction of the Hackensack Meadowlands Development Commission. The section is organized according to federal and state location-specific ARARS.

Federal

- Executive Orders on Floodplain Management and Wetlands Protection (CERCLA Floodplain and Wetlands Assessments- E.O. 11988 and 11990)

The floodplain management and wetlands protection Executive Orders require federal agencies to assess the potential effects

of actions they take in a floodplain or wetland area. Agencies must demonstrate that any remedial action taken in a wetland or floodplain is the only practical alternative. In addition, the agency must show that the potential negative effects are minimal and must describe any steps necessary to prevent degradation of natural or beneficial values of floodplains or wetlands.

The SCP site is located in a Class IV wetland, although the site itself is filled, and therefore, not presently a wetland. Excavation of contaminated soils might impact the surrounding wetland. To comply with the Executive Orders, excavation may have to be backfilled, graded to its original grade and revegetated. In addition, erosion, sedimentation, and resuspension of sediments may have to be mitigated. To the extent that removal or remedial actions impact the surrounding wetlands, the Agency may be required to complete an assessment. In all cases, the Agency must document remedial action decisions in a Statement of Finding and Record of Decision. In addition, if the selected removal action is scheduled to extend beyond 45 days, a formal community relations plan must be developed.

o Clean Water Act Section 404 Requirements

Section 404 gives the Army Corps of Engineers authority to issue permits for disposal or discharge of dredged or fill material to waters of the U.S., including isolated wetlands. Factors the Corps may use to evaluate whether or not to issue a permit include conservation considerations, economic values, recreation values, effects on shoreline or wetlands, fish and wildlife values, human health and welfare, and municipal water supply impacts. Under Section 404 (b)(1) guidelines (40 CFR 230.10(b)(c)), dredged or fill material may not be allowed to be discharged or disposed of if such action would violate toxic effluent standards under the CWA 307 or state water quality standards, or if there is a practical alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem.

To the extent that remedial action involves discharge of dredged material in wetlands; capping; or construction of berms, levees, and drains, it will be subject to Section 404 permit conditions.

State of New Jersey

- o General Standards for Permitting Stream Encroachment (Flood Hazard Area Control Act Requirements N.J.S.A. 58: 16A-50) (N.J.A.C. 7:8-3.15)

These standards control soil erosion and sediment movement caused by construction or alteration of any structure or

permanent fill along a stream or in flood plain area. Remedial action at SCP site that consists of soil excavation in or near the stream bed would be subject to these requirements.

- o Hackensack Meadowlands Development Commission (HMDC) Zoning/Land Use/Environmental Requirements (N.J.A.C. 19:4)

The HMDC has lead responsibility for managing the Hackensack Meadowlands District (HMD) (boundaries are prescribed in the Hackensack Meadowlands Reclamation Act (N.J.S.A. 13:17-A et seq)). The HMD areas that lie within the coastal zone boundaries are treated differently than other parts of the coastal zone. Land use in the HMD is controlled by the Master Plan Zoning Ordinance Requirements (latest revision on June 20, 1988), which are compatible with the CZMA while reflecting the HMDC's mandate for business development. The HMDC is empowered to review and regulate construction plans to ensure the protection of wetland/estuary areas.

The SCP site is within the HMDC jurisdiction. HMDC requirements may be ARARs for detailed evaluations of remedial alternatives, particularly with regard to activities that would effect water quality of Peach Island Creek and wetland areas.

- o Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C. 1451)

The Coastal Zone Management Act controls the use and activities performed in designated coastal areas. Most CERCLA remedial actions that would be taken in coastal areas are considered to be consistent with coastal zone restrictions; although consistency determinations must be sought.⁽⁴⁾ CERCLA actions that do not properly mitigate coastal area impacts could be in conflict with the coastal zone requirements. See also Hackensack Meadowlands Development Commission requirements.

- o The Freshwater Wetlands Protection Act of 1987 (N.J.S.A. 13:98-1)

The Freshwater Wetlands Protection Act requires the permitting of activity in and around freshwater wetlands. It is likely that these provisions would apply, because Peach Island Creek may be classified FW2. Regulated activity includes removal, excavation, disturbance, or dredging of soil; disturbance of

(4) Mr Bob Hargrove, Environmental Impacts Branch, U.S. E.P.A Region II at "CERCLA/SARA Environmental Review Seminar," April 15, 1988.

water table; dumping, discharge or filling; and driving of pillings; among others. Any remedial action selected for SCP site that employs one of these activities would be subject to these requirements, which become effective July 1, 1988.

4.0 "TO BE CONSIDERED" MATERIAL

The following section presents material that may need to be considered when developing and evaluating remedial alternatives at the SCP site. "To be considered" material is presented according to the media it addresses.

4.1 Ground Water and Surface Water

Federal

- o Safe Drinking Water Act Maximum Contamination Level Goals (MCLGs)

MCLGs are non-enforceable drinking water standards for 9 contaminants. EPA has proposed MCLGs for an additional 40 contaminants (40 FR 46936). MCLGs would result in no known or anticipated adverse health effects. For carcinogens, the MCLGs are set at zero.

MCLGs would be pertinent to the SCP site cleanup if multiple exposure pathways existed or other significant threats were identified.

- o EPA Drinking Water Health Advisories

EPA drinking water health advisories are non-enforceable guidelines for drinking water suppliers that are protective of the most sensitive population members. Health advisories are calculated to reflect the consumption and toxicological characteristics for children and adults for various exposure durations. The advisories should be evaluated if indicator chemicals detected at SCP lack ARARs.

- o EPA Health Effects Assessments (HEAs) and Toxicological Profiles

EPA's Office of Research and Development has published Health Effects Assessments (HEAs), which provide an analysis of toxicological and cancer potencies for about 60 chemicals. The toxicological profiles, which are currently under development, will update HEA analysis and reflect additional analysis for new chemicals. According to current schedule, the toxicological profiles should be finalized by early 1989.

o EPA's Groundwater Classification Guidelines and Protection Strategy

EPA's Groundwater Classification Guidelines may be used to guide the application of contaminant-specific ARARs. Ground water is grouped into one of three classes depending on its potential for use as drinking water. The strategy states that SDWA MCLS are appropriate to use to protect ground water that is classified as a current or potential drinking water source.

State of New Jersey

o Interim Action Levels for Selected Organics in Drinking Water, January 1986

This guidance provides concentration ranges of hazardous contaminants detected in drinking water that trigger response action. The concentration ranges are health based levels. They are derived from Suggested No Adverse Response Levels or "SNARLS", maximum contaminant level goals, and risk assessment results. The response actions are divided into four levels: (1) Level I- no action; (2) Level II - sampling and monitoring; (3) Level III - sampling, monitoring, and treatment or new water system within one year; (4) Level IV - sampling, monitoring, and immediate remedial action. The interim action levels contained in this guidance will be replaced by maximum contaminant levels (proposed December 7, 1987 and expected to go final by early Fall 1988). Table 4.1 provides the interim action concentration levels and appropriate level responses.

o Interim Groundwater Cleanup Guidance (1986)

Table 4.4 contains the groundwater cleanup levels for specific chemical compounds provided by the guidance. Where a federal or state MCL exists for a chemical compound, the more stringent applies. In no case should the concentration of the sum of all compounds listed in Table 4-4 exceed 50 ppb in ground water.

o SCP Site-Specific Groundwater Cleanup Levels (July 9, 1988, NJDEP)

The groundwater cleanup levels provided in Table 4.5 were provided by NJDEP for the SCP-identified compounds listed in the Dames and Moore Report, "Draft Remedial Investigation," April 18, 1988. Although in many cases the NJDEP levels complement those contained elsewhere in ARARs or other "to be considered" material, they may be more stringent in some cases.

- o New Jersey's Proposed Maximum Contaminant Levels for A-280 Chemicals (December 7, 1987)

New Jersey's proposed Maximum Contamination Levels would replace the "Interim Action Levels for Hazardous Contaminants in Drinking Water" that were established as guidelines. The proposed MCLs were selected based on the principle that the health-based level should be the MCL unless the health-based level was below the practical quantitation level (PQL). In those cases, the MCL was set at the PQL. The proposed New Jersey MCLs are at least as or more stringent than the proposed federal MCLs.

When finalized, the New Jersey MCLs should be used to establish the drinking water cleanup standards for particular contaminants at the SCP site cleanup, because they are more stringent than the proposed federal MCLs. Table 4.2 provides the list of proposed New Jersey MCLs.

4.2 Air

- o Proposed Air Emission Standards for Treatment, Storage and Disposal Facilities (52 Federal Register 3748, February 5, 1987)

EPA has proposed to regulate air emissions from certain equipment employed in volatile hazardous air pollutant (VHAP) service. To be regulated, VHAP equipment must contain or be in contact with liquids, gases or emissions from hazardous waste in concentrations greater than 10% organics by weight. VHAP equipment include process accumulator vessels, such as air strippers. The proposed standard would require that VHAP equipment have a closed-vent system capable of capturing and transporting any leakage to a control device designed and operated to achieve at least 95% emission reduction.

Remedial actions that employ air strippers would be subject to these requirements once they are finalized.

4.3 Soils and Sediments

The NJDEP soil cleanup approaches described in this section are pertinent only to upland soils. Development of cleanup levels for aquatic/estuarine sediments in Peach Island Creek or Berry's Creek should utilize EPA risk assessment approaches based upon Clean Water Act Water Quality Criteria for the parameters of concern.

o New Jersey Department of Environmental Protection,
Summary of Approaches to Soil Cleanup Levels

This guidance presents New Jersey DEP's theoretical approach to establishing cleanup objectives for contaminated soil. The theoretical approaches are discussed in the context of the DEP's overall objective for establishing soil cleanup levels:

- Protect humans from direct contact;
- Protect ground water from degradation due to leaching
- Protect surface water when migration of contaminated soil to surface water is possible.

Actual applications of the five approaches are discussed to provide further guidance on what the DEP believes are acceptable uses.

The four approaches discussed include cleanup based on: (1) background concentrations; (2) analytical detection limits; (3) risk assessment methodology; (4) surrogate or action levels; and (5) chemical class cleanup objectives. New Jersey suggests that background only be applied to contaminants that exist in nature.

Background contamination levels for inorganic compounds have been developed using specific site or literature values. The cleanup levels for inorganic compounds are generally 1 to 3 times background depending on range of concentration and toxicity observed. Table 4.3 presents New Jersey background, U.S. background, and suggested soil cleanup objectives for inorganic metals detected at SCP. Cleanup of inorganics in soil at the SCP site should achieve these levels. "Industrial" background for petroleum hydrocarbons is identified as 100 ppm. The objectives also provide a PCB soil cleanup level range of 1-5 ppm (7/19/88 transmittal from NJDEP to U.S. EPA).

The use of analytical detection limits results in cleanup levels at non-detectable limits. Analytical detection limits have been used to set cleanup levels for anthropogenic compounds, (i.e., those that do not occur naturally at the site). Therefore, this approach could be used to set soil cleanup levels for SCP chemicals for which alternative soil cleanup levels cannot be established.

The risk assessment methodology approach has been used to establish soil cleanup levels for organic compounds. A soil cleanup level should be developed to protect humans from direct contact and to protect ground water and surface water quality. If the risk-based cleanup level is below the detection limit,

then the detection limit becomes the cleanup level. A risk-based PCB soil cleanup level, which does not exceed a one-in-a-lifetime cancer risk, was calculated as 274 ppb. Because the current detection limit is approximately at 5 ppm, the acceptable soil contaminant level is 5 ppm (based on analytical methods). The risk assessment approach is recommended for establishing soil cleanup standards for PCBs, solvents (e.g., toluene and benzene), phenols, and phthalates, which were detected at SCP site.

The use of the risk assessment approach is limited by the adequacy of site data for characterizing the frequency and duration of exposure pathways. Although the department acknowledges the tendency for a risk assessment approach to overprotect the environment, it prefers using reasonable worst case exposure scenarios to protect the most sensitive individual likely to be exposed.

The chemical class cleanup objective approach for establishing soil cleanup levels is best applied for triggering additional analysis. Therefore, its use for establishing cleanup levels in soil at the SCP site is limited.

Finally, the surrogate or action level approach has been used for volatile organics, base neutrals and petroleum hydrocarbons. Like the chemical class cleanup approach, it is best applied for triggering additional analysis, such as risk assessment or determination of background levels). Moreover, in the absence of other soil cleanup standards, the action levels may be used. The following scale applies:

Volatile Organics	1 ppm
Base Neutrals	10 ppm
Petroleum Hydrocarbons	100 ppm

TABLE 1.1

SAFE DRINKING WATER ACT (SDWA)
MAXIMUM CONTAMINANT LEVELS
(MCLs)

<u>CHEMICAL NAME</u>	<u>MCL (mg/l)</u>
Arsenic and Compounds	5.0×10^{-2}
Benzene	$5.0 \times 10^{-3*}$
Cadmium and Compounds	1.0×10^{-2}
Chloroform	1.0×10^{-1}
Chromium VI and Compounds	5.0×10^{-2}
1,2-Dichloroethane	$5.0 \times 10^{-3*}$
1,1-Dichloroethylene	$7.0 \times 10^{-3*}$
Endrin	2.0×10^{-4}
Fluorides	4.0
Lead and Compounds (Inorganic)	5.0×10^{-2}
Mercury and Compounds (Inorganic)	2.0×10^{-3}
Methoxychlor	1.0×10^{-1}
Nitrate (as N)	$1.0 \times 10^{+1*}$
Selenium and Compounds	1.0×10^{-2}
Silver and Compounds	5.0×10^{-2}
1,1,1-Trichloroethane	2.0×10^{-1}
1,1,2-Trichloroethane	$2.0 \times 10^{-1*}$
Trichloroethylene	$5.0 \times 10^{-3*}$
Vinyl Chloride	$2.0 \times 10^{-3*}$

* Proposed (Federal) as of 2/1987

TABLE 1.2 (Sheet 1 of 3)

CLEAN WATER ACT (CWA)
WATER QUALITY CRITERIA (WQC)
FOR PROTECTION OF HUMAN HEALTH

<u>CHEMICAL NAME</u>	<u>WATER AND FISH INGESTION (Units per Liter)</u>	<u>FISH CONSUMPTION ONLY (Units per Liter)</u>
Acenapthene (Organoleptic)*	20 ug	20 ug
Aldrin	0.074 ng	0.079 ng
Antimony and Compounds	146 ug	45,000 ug
Arsenic V and Compounds	2.2 ng	17.5 ng
Arsenic III and Compounds	-	-
Benzene	0.66 ug	40 ug
Benzidine	0.12 ng	0.53 ng
Beryllium and Compounds	5.9 ng	117 ng
Cadmium and Compounds	10 ug	-
Chlorinated Benzenes	488 ug	-
Chloroform	0.19 ug	15.7 ug
Chromium III and Compounds	170 mg	3,433 mg
Cyanide	200 ug	-
Dichlorobenzenes	400 ug	2.5 mg
1,2-Dichloroethane	0.94 ug	243 ug
Dichloroethylenes	0.033 ug	1.85 ug
2,4-Dichlorophenol	3.09 mg	-
Dieldrin	0.071 ng	0.078 ng

TABLE 1.2 (Sheet 2 of 3)

CLEAN WATER ACT (CWA)
WATER QUALITY CRITERIA (WQC)
FOR PROTECTION OF HUMAN HEALTH

<u>CHEMICAL NAME</u>	<u>WATER AND FISH INGESTION (Units per Liter)</u>	<u>FISH CONSUMPTION ONLY (Units per Liter)</u>
DDT	0.024 ng	0.204 ng
Endosulfan	74 ug	159 ug
Eldrin	1 ug	-
Ethyl benzene	1.4 mg	3.25 mg
Fluoranthene	42 ug	54 ug
Isophorone	5.2 mg	520 mg
Lead and Compounds (Inorganic)	50 ug	-
Mercury and Compounds (Inorganic)	144 ng	146 ng
Methoxychlor	100 ug	-
Nickel and Compounds	13.4 ug	100 ug
Nitrobenzene	19.8 mg	-
Phenol	3.5 mg	
PCBs	0.079 ng	0.079 ng
Selenium and Compounds	10 ug	-
Silver and Compounds	50 ug	-
1,1,2,2-Tetrachloroethane	0.17 ug	10.7 ug
Tetrachloroethylene	0.8 ug	8.85 ug
Thallium and Compounds	13 ug	48 ug

TABLE 1.2 (Sheet 3 of 3)

CLEAN WATER ACT (CWA)
WATER QUALITY CRITERIA (WQC)
FOR PROTECTION OF HUMAN HEALTH

<u>CHEMICAL NAME</u>	<u>WATER AND FISH INGESTION (Units per Liter)</u>	<u>FISH CONSUMPTION ONLY (Units per Liter)</u>
Toluene	14.3 mg	424 mg
1,1,1-Trichloroethane	18.4 mg	1.03 mg
1,1,2-Trichloroethane	0.6 ug	41.8 ug
Trichloroethylene	2.7 ug	80.7 ug
Vinyl Chloride	2 ug	525 ug

* Criteria designated as organoleptic are based on taste and odor effects, but not human effects. Health-based WQC are not available for these chemicals.

Source: "Water Quality Criteria, May 1, 1987; Office of Water, Regulation and Standards, USEPA 440/5-86-001.

TABLE 1.3

NEW JERSEY GROUNDWATER
QUALITY STANDARDS FOR GW2
(NJAC 7:9-6)

<u>CHEMICAL NAME</u>	<u>PRIMARY</u>	<u>SECONDARY</u>
Arsenic and Compounds	0.05 mg/l	-
Aldrin/Dieldrin	0.003 ug/l	-
Benzidine	0.0001 mg/l	-
Cadmium and Compounds (Hexavalent)	0.01 mg/l	-
Chromium and Compounds	0.05 mg/l	-
DDT and Metabolites	0.001 ug/l	-
Endrin	0.004 ug/l	-
Lead and Compounds	0.05 mg/l	-
Mercury and Compounds	0.002 mg/l	-
Cyanide	0.2 mg/l	-
Phenol	3.5 mg/l	.3 mg/l
PCBs	0.001 ug/l	-
Selenium and Compounds	0.01 mg/l	-
Silver and Compounds	0.5 mg/l	-
Copper	-	1.0 mg/l
Fluoride	-	2.0 mg/l
Oil and Grease and Petroleum Hydrocarbons	-	none noticeable
Zinc and Compounds	-	5.0 mg/l

TABLE 1.4

NEW JERSEY SURFACE WATER
QUALITY STANDARDS (WQS)
 (NJAC 7:9-4)

<u>CHEMICAL NAME</u>	<u>WQS (ug/l)</u>	<u>CLASSIFICATION</u>
Petroleum Hydrocarbons and other oil and grease	None noticeable in water or deposited along shore or on aquatic substance in quantity detrimental to natural biota	All
Aldrin/Dieldrin	0.0019	All
Arsenic	50.	FW2
Benzidine	0.1	All
Cadmium	10.0	FW2
Chromium	50.0	FW2
DDT and Metabolites	0.0010	All
Endosulfan	0.056	FW2
	0.0087	SE, SC
Endrin	0.0023	All
Lead	50.0	FW2
Mercury	2.0	FW2
PCBs	0.014	FW2
	0.030	SE, SC
Selenium	10.0	FW2
Silver	50.0	FW2

TABLE 1.5

GROUNDWATER PROTECTION AND RESPONSE
MAXIMUM CONCENTRATION LIMITS
(RCRA MCLs)
(NJAC 7:14 A-6.15)

	MCLs <u>(mg/l)</u>
Arsenic	0.05
Cadimium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Selenium	0.01
Silver	0.05
Endrin	0.004 ug/l
Methoxychlor	0.1

TABLE 1.6 (Sheet 1 of 2)

NJPDES TOXIC EFFLUENT LIMITS

(NJAC 7:14 A-1 Appendix F)

<u>TOXIC COMPOUND</u>	<u>MAXIMUM VALUE FOR PROTECTION OF POTABLE WATER SUPPLIES</u>	
	<u>10⁻⁶ Cancer Risk</u>	<u>Toxicity</u>
Aldrin	0.074 ng/l	-
Dieldrin	0.071 ng/l	-
Antimony	-	146.0 ug/l
Arsenic (Inorganic)	2.2 ng/l	-
Benzene	0.66 ug/l	-
Benzidine	0.12 ng/l	-
Beryllium	3.7 ng/l	-
Cadmium	-	10.0 ug/l
Chloroform	0.19 ug/l	-
Chromium		
Trivalent	-	170 mg/l
Hexavalent	-	50 ug/l
Cyanide (free CN)	-	200 ng/l
DDT	0.024 ng/l	-
Dichlorobenzenes	-	400 ug/l
1,1-Dichloroethylene	0.033 ug/l	-
Endosulfan	-	74 ug/l
Endrin	-	1 ug/l
Ethylbenzene	-	1.4 mg/l
1,2-Dichloroethane	0.94 ug/l	-
1,1,1-Trichloroethane	-	18.4 mg/l
1,1,2-Trichloroethane	0.6 ug/l	-
1,1,2,2-Tetrachloroethane	0.17 ug/l	-

TABLE 1.6 (Sheet 2 of 2)

NJPDES TOXIC EFFLUENT LIMITS

(NJAC 7:14 A-1 Appendix F)

<u>TOXIC COMPOUND</u>	<u>MAXIMUM VALUE FOR PROTECTION OF POTABLE WATER SUPPLIES</u>	
	<u>10⁻⁶ Cancer Risk</u>	<u>Toxicity</u>
bis (3-Chloroethyl ether)	0.03 ug/l	-
Fluoranthene	-	42 ug/l
Isophorone	-	5.2 mg/l
Lead	-	50 ug/l
Mercury	-	144 ng/l
Nickel	-	13.4 ug/l
Nitrobenzene	-	19.8 mg/l
Phenol	-	3.5 mg/l
Dimethyl phthalate	-	313 mg/l
Diethyl phthalate	-	350 mg/l
Di butyl phthalate	-	34 mg/l
PCBs	0.079 ng/l	-
Selenium	-	10 ug/l
Silver	-	50 ug/l
Tetrachloroethylene	0.8 ug/l	-
Thallium	-	1.0 ug/l
Toulene	-	14.3 mg/l
Trichloroethylene	2.7 ug/l	-
Vinyl Chloride	2.0 ug/l	-

TABLE 1.7 (Sheet 1 of 3)

NEW JERSEY AMBIENT AIR QUALITY STANDARDS

Suspended Particulate Matter

(a) Primary air quality standards are:

1. During any 12-consecutive months, the geometric mean value of all 24-hour averages of suspended particulate matter concentrations in ambient air shall not exceed 75 micrograms per cubic meter; and
2. During any 12 consecutive months, 24-hour average concentrations may exceed 260 micrograms per cubic meter no more than once.

(b) Secondary air quality standards are:

1. During any 12-consecutive months, the geometric mean value of all 24-hour averages of suspended particulate matter concentrations in ambient air shall not exceed 60 micrograms per cubic meter; and
2. During any 12-consecutive months, 24-hour average concentrations may exceed 150 micrograms per cubic meter no more than once.

Sulfur Dioxide

(a) The primary air quality standards are:

1. During any 12-consecutive months, the arithmetic mean concentration of sulfur dioxide in ambient air shall not exceed 80 micrograms per cubic meter (0.03 ppm); and

TABLE 1.7 (Sheet 2 of 3)

NEW JERSEY AMBIENT AIR QUALITY STANDARDS

2. During any 12-consecutive months, 24-hour average concentrations may exceed 365 micrograms per cubic meter (0.14 ppm) no more than once.

(b) The secondary air quality standards are:

1. During any 12-consecutive months, the arithmetic mean concentration of sulfur dioxide in ambient air shall not exceed 60 micrograms per cubic meter (0.02 ppm);
2. During any 12-consecutive months, 24-hour average concentrations may exceed 260 micrograms per cubic meter (0.1 ppm) no more than once; and
3. During any 12-consecutive months, three-hour average concentrations may exceed 1,300 micrograms per cubic meter (0.5 ppm) no more than once.

Carbon Monoxide

(a) The primary and secondary air quality standards are:

1. During any 12 consecutive months, eight-hour average concentrations of carbon monoxide in ambient air may exceed ten milligrams per cubic meter (9 ppm) no more than once; and
2. During any 12 consecutive months, one-hour average concentrations may exceed 40 milligrams per cubic meter (35 ppm) no more than once.

TABLE 1.7 (Sheet 3 of 3)

NEW JERSEY AMBIENT AIR QUALITY STANDARDS

Ozone

(a) The primary air quality standard is:

1. During any 12 consecutive months, daily maximum one-hour average concentrations of ozone in ambient air may exceed 0.12 ppm (235 micrograms per cubic meter) no more than once.

(b) The secondary air quality standard is:

1. During any 12 consecutive months, one-hour average concentrations of ozone in ambient air may exceed 0.08 ppm (160 micrograms per cubic meter) no more than once.

Lead

(a) The primary and secondary air quality standards are:

1. During any three consecutive months, the arithmetic mean of 24-hour averages of lead concentrations in ambient air shall not exceed 1.5 micrograms per cubic meter. .

Nitrogen Dioxide

(a) The primary and secondary air quality standards are:

1. During any 12 consecutive months, the arithmetic mean concentration of nitrogen dioxide in ambient air shall not exceed 100 micrograms per cubic meter (0.05 ppm).

TABLE 2-1

LAND DISPOSAL BAN
THRESHOLD LEVELS FOR SPENT SOLVENTS
CONSTITUENT IN WASTE EXTRACT

<u>Spent Solvent (F001-F005)</u>	<u>Concentration in mg/l</u>	
	<u>Wastewaters</u>	<u>All Others</u>
Chlorobenzene	0.15	0.05
1,2-Dichlorobenzene	0.65	0.125
Ethylbenzene	0.05	0.053
Methylene chloride (pharmaceutical industry)	12.7	0.96
Methyl ethyl ketone	0.05	0.33
Nitrobenzene	0.66	0.125
Tetrachloroethylene	0.079	0.05
Toluene	1.12	0.33
1,1,1-Trichloroethane	1.05	0.41
Trichloroethylene	0.062	0.091
Xylene	0.05	0.15

TABLE 2-2
LAND DISPOSAL BAN
"CALIFORNIA LIST" WASTES

REGULATORY LEVELS

<u>Constituent</u>	<u>Specified Level</u>	<u>Waste Analysis Req.</u>
Metals		
Arsenic	500 mg/l	Analysis of filtrate
Cadmium	100 mg/l	"
Chromium	500 mg/l	"
Lead	500 mg/l	"
Mercury	20 mg/l	"
Nickel	134 mg/l	"
Selenium	100 mg/l	"
Thallium	130 mg/l	"
Cyanide (free)	1,000 mg/l	"
Corrosives	pH 2.0	Analysis of total waste
PCBs	50 ppm	"
HOCS	1,000 mg/kg	"

TABLE 2-3
LAND DISPOSAL BAN
"CALIFORNIA LIST" WASTES

TREATMENT METHODS AND EFFECTIVE DATES

<u>Constituent</u>	<u>Treatment Method</u>	<u>Effective Date</u>
Liquids with California List metals	BDAT not specified. Treat to below statutory levels or until no longer liquid.	7/8/87
Corrosive liquids with pH 2.0	BDAT not specified. Treat to above pH 2.0 or until no longer liquid.	7/8/87
Liquids containing free cyanides at levels 1,000 ppm	BDAT not specified. Treat to below 1,000 ppm or until no longer liquid.	7/8/87
Liquids containing PCBs from 50 ppm to 499 ppm	BDAT is incinerator or high efficiency boiler authorized under RCRA and TSCA.	7/8/87
Liquids containing PCBs 500 ppm	BDAT in incinerator authorized under RCRA and TSCA.	7/8/87
Liquid wastewaters containing HOCs between 1,000 ppm and 10,000 ppm	BDAT not specified. Treat to below 1,000 ppm. If stabilized or solidified, residual must still be under 1,000 ppm to be landfilled.	
Liquid non-wastewaters containing HOCs between 1,000 ppm and 10,000 ppm	BDAT is incinerator authorized under RCRA.	2-year variance granted until 7/8/89
Liquid non-wastewaters containing HOCs 10,000 ppm	BDAT is incinerator authorized under RCRA.	2-year variance granted until 7/8/89
Non-liquid hazardous wastes containing HOCs 1,000 ppm	BDAT is incinerator authorized under RCRA.	2-year variance granted until 7/8/89
Liquid hazardous wastes containing PCBs 50 ppm and other HOCs 950 ppm	BDAT is incinerator authorized under RCRA and TSCA.	7/8/87

TABLE 4-1^(a)
Interim Action Levels (ug/l) and Recommendations for
Responses for Selected Organics in Drinking Water^(b)
January, 1986

<u>Hazardous Contaminant</u>	<u>Group</u> ^c	<u>Level I</u>	<u>Level II</u>	<u>Level III</u>	<u>Level IV</u>
Benzene	A	0-0.68(1)	>0.68 ≤ 6.8	>6.8 ≤ 68	>68
Dichlorobenzene(s)	C	0-94(5)	>94 ≤ 425	>425 ≤ 750	>750(6)
1,2-Dichloroethane	A	0-0.7(7)	>0.7 ≤ 7	>7 ≤ 70	>70
1,1-Dichloroethylene	B	0.7(8)	>7 ≤ 53	>53 ≤ 100	>100(9)
Methylene Chloride	A	0-4.8(12)	>4.8 ≤ 47	>47 ≤ 479	>479
Polychlorinated Biphenyls	A	0-0.007(13)	>0.007 ≤ 0.07	>0.07 ≤ 0.7	>0.7
Tetrachloroethylene	A	0-0.67 (14)	>0.67 ≤ 6.6	>6.6 ≤ 66	>66
1,1,1-Trichloroethane	B	0-20 (15)	>20 ≤ 110	>110 ≤ 200	>200 (16)
Trichloroethylene	A	0-3.1 (17)	>3.1 ≤ 30	>30 ≤ 309	>309
Vinyl Chloride	A	0-0.015(18)	>0.015 ≤ 0.15	>0.15 ≤ 1.5	>1.5
Xylene(s)	C	0-100	>100 ≤ 550	>550 ≤ 1200	>1200(19)

SUMMARY OF RESPONSES

- Level I - No recommended action, random spot check sampling.
- Level II - Confirm sampling results; periodic monitoring; recommend alternative water sources and/or appropriate treatment techniques.
- Level III - Confirm sampling results; monthly monitoring; develop within one year alternative water supplies and/or appropriate treatment techniques for public community water systems; recommend appropriate remedial actions to public noncommunity water systems; and quarterly progress reports from both public community and public noncommunity water systems.
- Level IV - Confirm sampling results; immediate remedial action for both public community and public noncommunity water systems.

a Table 4-1 has been prepared by the Division of Water Resources and the Office of Science and Research of the New Jersey Department of Environmental Protection.

b All units in Levels I, II, III and IV are presented in micrograms per liter (ug/l) which also equals parts per billion (ppb). For the purpose of Table 1, ">" means "greater than" and "≤" means "less than or equal to". Numbers in parentheses, for example "(1)", indicate corresponding scientific references in Appendix 1 attached.

c The column title "Group" represents categorization of the listed hazardous contaminants based upon the weight of evidence of its carcinogenicity. For example, Group A refers to known or probable human carcinogens, Group B refers to possible carcinogens and Group C refers to insufficient or negative data available on carcinogenicity.

Source: Drinking Water Guidance, Interim Action Levels and Recommendations for Responses for Selected Organics in Drinking Water, January 1986.

TABLE 4-2

PROPOSED NEW JERSEY MCLS

<u>COMPOUND</u>	<u>MCL (ppb)</u>
Benzene	1.0
Chlorobenzene	4.0
1,2-Dichloroethane	2.0
1,1-Dichloroethylene	2.0
Methylene Chloride	2.0
Polychlorinated Biphenyls (PCBs) (Total)	0.5
Tetrachloroethylene	1.0
1,2-Trans-dichloroethylene	10.0
1,2,4-Trichlorobenzene	8.0
1,1,1-Trichloroethane	26.0
Trichloroethylene	1.0
Vinyl Chloride	2.0
Xylene(s)	44.0

TABLE 4.3

SCIL CLEANUP OBJECTIVES FOR INORGANIC METALS

Metal	N.J. Background ^a	U.S. Background	Cleanup Objective (ppm)	Time above NJ Background
Arsenic	N.A.	1.1 - 16.7	20	N.A.
Cadmium	1.0 - 4.0	0.01 - 1.0 ppm	3	1
Chromium	5.0 - 48	1 - 1,500	100	2
Copper	0.5 - 53.6	2 - 200	170	3
Cyanide	N.A.	0.09	12 ^c	N.A.
Lead	1.0 - 180	2 - 200	250 - 1,000 ^c	1-2
Mercury	N.A.	0.01 - 4.6	1	N.A.
Nickel	11.1 - 86.5	8 - 550	100	1
Selenium	0.01 - 4 ^b	0.01 - 5.0	4	1
Silver	N.A.	0.01 - 5	5	N.A.
Zinc	4.5 - 168	10 - 3,000	350	2

a. Data from Stephen Toth or Harry Motto, Cook College, Rutgers University.

b. Agricultural soils in N.J.

c. Established by New Jersey Department of Health based on a 1986 study of exposure to lead in soils.

Source: New Jersey Department of Environmental Protection - "Summary of Approaches to Soil Cleanup Levels" (as of February 19, 1987).

TABLE 4.4

INTERIM GROUNDWATER CLEANUP LEVELS

<u>Carcinogens</u> <u>(5 ppb)</u>	<u>Noncarcinogens</u> <u>(federal or</u> <u>state MCLs)</u>
acrylonitrile	acrolein
benzene	bromoform
carbon tetrachloride	chlorobenzene
chloroform	chlorodibromomethane
1,2-dichloroethane	chloroethane
1,1-dichloroethylene	2-chloroethylvinyl ether
methylene chloride	dichlorobromomethane
1,1,2,2-tetrachloroethane	1,1-dichloroethane
tetrachloroethylene	1,2-dichloropropane
trichloroethylene	1,3-dichloropropylene
vinyl chloride	ethylbenzene
1,1,2-trichloroethane	methyl bromide
	methyl chloride
	toluene
	1,2-trans-dichloroethylene
	1,1,1-trichloroethane* 200.0 ppb

* EPA proposed level applies in this case

TABLE 4.5 (Sheet 1 of 3)

GROUNDWATER CLEANUP LEVELS FOR
THE SCP SITE REMEDIATION

COMPOUNDS(a)

<u>Volatile Compounds</u>	<u>Cleanup Level (ppb)</u>
Benzene	1.0
Chlorobenzene	4.0
Chloroethane	*
Chloroform	5.0
1,1 - Dichloroethane	*
1,2 - Dichloroethane	2.0
1,1 -Dichloroethylene	2.0
Ethylbenzene	*
Methylene chloride	2.0
1,1,2,2 -Tetrachloroethane	1.4
Tetrachloroethylene	1.0
Toluene	*
1,2 - Trans-dichloroethylene	10.0
1,1,1 - Trichloroethane	26.0
Trichloroethylene	1.0
Vinyl Chloride	2.0
Methyl ethyl ketone	-
m-xylene and	
o+p -Xylene	44.0 (total)
<u>Acid Compounds</u>	
2 - Chlorophenol	*
2,4 - Dichlorophenol	*
2,4 - Dimethylphenol	*
2 - Nitrophenol	*
Phenol	*
<u>Base/Neutral Compounds</u>	
Acenaphthene	*
Acenaphthylene	*
Anthracene	*

Source: New Jersey Department of Environmental Protection Memo
to EPA (7/19/1988)

(a) This list of SCP-identified compounds was presented in
the Dames and Moore Report and is based on samples
collected on July and December 1987.

*Numbers to be developed

TABLE 4.5 (Sheet 2 of 3)

GROUNDWATER CLEANUP LEVELS FOR
THE SCP SITE REMEDIATION

COMPOUNDS(a)

Cleanup Level (ppb)Base/Neutral Compounds (Cont'd)

Benzo (a) pyrene	5.0
Benzo (b) fluoranthene	5.0
bis (2 - Chloroethyl) ether	5.0
Butyl benzyl phthalate	*
2 - Chloronaphthalene	*
Chrysene	5.0
1,2 - Dichlorobenzene	*
Diethyl phthalate	*
Dimethyl phthalate	*
Fluoranthene	5.0
Fluorene	*
Indeno (1, 2, 3 - c, d) pyrene	5.0
Isophorone	*
Naphthalene	*
Nitrobenzene	*
Phenanthrene	*
Pyrene	*

Pesticide Compounds

Beta - BHC	-
4,4' DDT	3.5
Endosulfan I	-
Endrin	-

PCB Aroclors

Aroclor 1242	0.5
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Conventional Analysis

Phenolics, Total	300.0
Cyanide, Total	200.0
Petroleum Hydrocarbons	ND (not detected)

*Numbers to be developed

TABLE 4.5 (Sheet 3 of 3)

GROUNDWATER CLEANUP LEVELS FOR
THE SCP SITE REMEDIATION

COMPOUNDS(a)

Cleanup Level (ppb)

Metals

Arsenic	50.0
Beryllium	-
Chromium	-
Copper	1000.0
Mercury	2.0
Nickel	-
Silver	50.0
Zinc	5000.0

*Numbers to be developed